## 2.13 GLIDEPATH QUALIFICATION SURFACE (GQS)

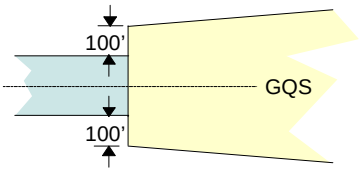
The GQS limits the height of obstructions between DA and RWT. When obstructions exceed the height of the GQS, a WAAS or IPV (NPV) approach procedure is not authorized.

### 2.13.1 Area

2.13.1 **a. Length.** The GQS extends from the runway threshold to the DA point.

2.13.1 **b. Width.** The GQS originates 100 feet from the runway edge at RWT.

**Figure 2-3. GQS Beginning Width**




Calculate the width of the GQS at the DA point using the following formula:

$$\text{Half Width at DA} = 0.036(D - 200) + 400$$

*Where: D is the distance from RWT to the DA point*

Calculate the width of the GQS at any distance "d" from RWT using the following formula:

$$\text{Width at Distance "d"} = \left(\frac{\text{Half Width at DA} - k}{D} \times d\right) + k$$

*Where: D is the distance from RWT to the DA point*
*d is the desired distance from RWT*

$$k = \frac{\text{RWY Width}}{2} + 100$$

2.13.1 **c. OCS.** Obstructions shall not penetrate the GQS. Calculate the height of the GQS above ASBL at any distance "d" from RWT using the following formula:

$$\text{GQS Height} = \tan\left(\frac{2 \times GPA}{3}\right) \times d$$

*Where: d is the distance from RWT*
*GPA is glidepath angle*